(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 531 155 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
27.03.1996 Bulletin 1996/13

(51) Int. Cl.[6]: **A61K 35/78**

(21) Application number: **92308053.5**

(22) Date of filing: **04.09.1992**

(54) Cerebral-Activating Compositions

Hirnaktivitätfördernde Zubereitungen

Compositions d'activation cérébral

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

(30) Priority: **06.09.1991 US 755814**

(43) Date of publication of application:
10.03.1993 Bulletin 1993/10

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Description

Field of Invention

The use of black currant juice (Ribes nigrum L.) or black currant juice concentrate or dry extract thereof, to inhibit monoamine oxidase and to activate the brain and central nervous system, in a living animal, especially a human being, in need thereof, and thereby to increase the general cerebral performance, especially in healthy and elderly people, and for the prevention, treatment, and alleviation of neurodegenerative diseases associated with reduced cerebral performance, such as Parkinson's disease, dementia, and mood disorders, and compositions thereof for such purpose, and method of preparing such compositions.

Background of the Invention and Prior Art

The neurotransmitter dopamine is one of the most essential cerebral neurotransmitters responsible for the modulation of cerebral performance.

Reduced dopamine concentrations, which are often present in elderly people and specific neurodegenerative diseases, are always associated with reduced cerebral function.

Unfortunately, the substitution of dopamine (which is the main target of L-dopa therapy) does not have the desired effect, since dopamine substitution supports the decay of dopaminergic neurons, thereby accelerating the loss in cerebral function.

As neuronal decay is also supported by biotransformation products of dopamine, treatment with dopamine metabolism inhibitors should be preferred.

One of the first steps of dopamine degradation is catalyzed through monoamine oxidases, the inhibition of which is one aim of any therapeutic intervention addressed thereto.

Within the framework of an extensive pharmacognostic screening of various plants and the extracts thereof, it has been found unexpectedly that the juice of black currant has monoamine oxidase (MAO)-inhibiting properties and a cerebro-activating effect.

In the patent literature, the black currant has already been mentioned in connection with an enhancement of cerebral performance (EPA 88305450.4; EP 0296751 A1). In contrast to the present invention, however, in this patent application the desired enhancement effect is directly ascribed to the kernel oil and the unsaturated essential fatty acids (e.g., gamma linolenic acid). Within the scope of the investigations relating to the present invention, however, it was demonstrated that the juice of black currant and its concentrates and dry extracts, which are employed according to the present invention, contain essentially no or only insignificant amounts of kernel oil or unsaturated fatty acids (C_{18}, w3, 6, 9 = 0.02% and C_{18}, w3, 6 = 0.0018% by weight), so that such materials do not contribute to the excellent MAO-inhibiting and cerebrostimulating activities of the black currant juice according to the present invention.

On the contrary, it was demonstrated that black currant juice and concentrates and dry extracts thereof are characterized by MAO-inhibiting and cerebro-activating effects. According to these properties, black currant juice has the characteristic of enhancing cerebral performance in healthy and elderly people, and in patients suffering from neurodegenerative diseases, especially since it is believed that MAO-B inhibitors can halt the progression of such diseases, e.g., Parkinson's disease, for example, by preventing further degeneration of dopaminergic neurons. For details, inter alia, see SCRIP, May 1989, "Recent Trends in Research and the Treatment of Parkinson's Disease" by Professor William Armstrong (PJB Publications Ltd), cover sheet plus pages 58-61 and 63-67, in support of this relationship and the nexus between MAO-B inhibitory activity of a compound and its utility in the alleviation of neurodegenerative diseases associated with reduced cerebral performance.

Such desirable results have been substantiated by different test systems:

1. Demonstration of MAO-inhibiting action in vitro
2. Demonstration of MAO-inhibiting action in humans
3. Demonstration of stimulating effect in the mouse
4. Demonstration of cerebro-activating effect in the rat
5. Demonstration of cerebro-activating effect in humans

all as shown hereinafter under Pharmacological and Clinical Results.

The invention thus relates to use of black currant juice and concentrates and dry extracts thereof in the manufacture of medicaments for the inhibition of monoamine oxidase and/or for stimulation of the brain and central nervous sytem, e.g. to increase general cerebral performance, especially in healthy and elderly people, as well as for the prevention, treatment, and alleviation of neurodegenerative diseases associated with reduced cerebral performance, such as Parkinson's disease, dementia, and mood disorders.

Such medicaments may contain a pharmaceutically or orally-acceptable carrier or diluent together with the black currant juice or concentrate or dry extract thereof to facilitate oral administration of such a composition which may, for example, be in the form of a pharmaceutical, food, or dietetic food composition. The diluent or carrier may be adapted for the particular type of composition, which may, for example, be a tablet, a coated tablet, a syrup, a tonic, or a drink mix. The amount of black currant juice, concentrate, or dry extract present or employed is conveniently between 10 mg and 10 g per unit dosage form, preferably between 100 mg and 5 g per unit dosage form, and the black currant juice, concentrate, or dry extract is conveniently administered in an amount between 100 mg and 50 g per day, preferably in an amount between 100 mg and 50 g per day, preferably between 1 and 20 grams per day. The black currant juice is advantageously present in the form of an at least 2-fold concentrate thereof, preferably a 4-fold to 8-fold concentrate thereof, and most especially an approximately 5.5-fold concentrate thereof, or in the form of a dry extract thereof.

PHARMACOLOGICAL AND CLINICAL RESULTS

The following pharmacological and clinical evaluations and results are given to illustrate the method or use aspect of the invention, but are not to be construed as limiting.

Test 1 - Demonstration of MAO-inhibiting action in vitro

The test was carried out using a concentrate of black currant juice in 5.5-fold concentration. After adjustment of the pH to 7.2, one aliquot (40 ul) was pre-incubated with the enzyme (1 mg mitochondrial protein, rat liver) for 20 minutes at room temperature. For determination of monoamine oxidase (MAO) type A and B activity, the reaction was started by adding 50 nmol ^{14}C benzylamine or ^{14}C serotonin. After one minute of incubation in a shaking water bath (37°C), the reaction was stopped (1 ml perchloric acid, 0.5 M), the acidic and neutral deaminated products being determined after separation by ion-exchange chromatography.

The effect of the juice concentrate is described in percent of inhibition, related to a similarly-incubated buffer control.

Result:

The black currant concentrate effects a 61% inhibition of MAO type B, and an 37% inhibition of MAO type A.

Test 2 - Demonstration of MAO-inhibiting action in humans

In a test in humans, three healthy subjects received 5, 20, and 50 g of a concentrate of black currant juice in 5.5-fold concentration by the oral route. Blood samples were taken at times - 15, 0, 30, 60 and 180 minutes. After centrifugation, platelet-rich plasma was obtained, the MAO type B activity in thrombocytes being determined by a method similar to that described for Test 1.

Result:

MAO type B activity is inhibited in all three subjects with dependency upon dosage and time.

Maximum inhibition is obtained 60 minutes after application, and is between 70 and 90% at optimum dosage of 20 grams. This result was confirmed by 92% inhibition in the controlled test as specified under Test 5, using 50 g juice concentrate.

Test 3 - Demonstration of stimulating effect in the mouse

Five mice each received 40, 120, 360, 1080 and 3240 mg/kg of pH-neutralized black currant juice in 5.5-fold concentration by oral intubation. Acute mortality was not observed. Nineteen behavioral and performance parameters were scored 40 minutes after application.

Result:

Significant changes in behavior were found only for the parameter (8) defined as "excitation" or "excitement", scoring 24 out of a possible 25 at all doses, especially of 360 mg/kg and above.

This shows that even low doses of black currant juice effect a considerable cerebral stimulation in mice.

Test Details - Introduction:

The purpose of the study was to test the CNS activity of the black currant juice concentrate, following its p. o. application to mice. A battery of 19 tests was employed to investigate the effects of the drugs on toxic, behavioral and motor performance parameters.

Methods:

The test material was suspended in physiological saline supplemented with 1% methylcellulose and 1% Tween 80™. The test included 15 mice with 5 animals in each dosage group (360, 1080, and 3240 mg/kg).

The test material was administered by gavage to female NMRI mice weighing approximately 20 g. Pharmacological testing was performed 40 minutes after the application. Mortality was observed at 1 hour and 24 hours.

The test parameters included:

1. 1 h-mortality
2. 24 h-mortality
3. Tremors
4. Tonic convulsions
5. Clonic convulsions
6. Ptosis
7. Sedation
8. Excitement
9. Loss of explanatory activity
10. Loss of pinna reflex
11. Loss of righting reflex
12. Mydriasis
13. Catalepsy
14. Loss of bar grasp
15. Rotarod test (1 min)
16. Rotarod test (2 min)
17. Analgesia
18. Electroshock protection
19. Post-electroshock mortality

The total number of responding mice was determined for each parameter.

Results:

The pharmacological profile at all dosages was determined. Distinct effects (Score > 10) were observed for all dosage levels only with respect to excitement (8). All doses of 360 mg/kg or above were equally effective (Score 24).

Also, irrespective of the dose, only moderate effects on rotarod performance (2 min) and on post-electroshock-induced mortality were observed (Score 6 - 7).

Comparable distinct effects were also observed when using a pharmaceutically-effective subfraction of black currant juice (e.g., prepared by means of an ethanolic or CO_2-extraction procedure).

Test 4 - Demonstration of cerebro-activating effect in the rat

A pharmaco-EEG was recorded to assess the cerebroactivating effect in rats. For this purpose four (4) bipolar concentric electrodes with microplug were placed on a base plate and implanted in rats with reverse day/night rhythm. The plug was used for a 4-channel transmitter for telemetric transmission of the field potentials from frontal cortex, hippocampus, striatum, and reticular formation. The signals were subjected to Fast-FourierTransformation, and the mean values were determined for the density spectra within 15 minutes. By dividing the spectra into 6 different frequency ranges, i.e., delta, theta, alpha 1, alpha 2, beta 1 and beta 2 (1.25 - 35 Hz), pharmaco-specific changes could be assessed in relation to the values obtained before application. The animals received a 5.5-fold concentration of black currant juice in doses of 1.5, 3 and 6 ml/kg. The effects were determined over a period of 4 hours.

Result:

After application of the concentrate, the main change observed was a considerable decrease in the delta and alpha 2-band, as compared to a lesser decrease in the alpha 1-band.

There is great correspondence between frontal cortex and striatum. In the hippocampus the reduction in the alpha-2 band is less pronounced, whereas there is almost no decrease in the delta band for the reticular formation. The relation between the changes is almost identical in all four brain areas, and very stable.

The action sets in at 1.5 ml/kg, reaching its maximum already at 3 ml/kg.

From these findings it can be seen that black currant juice has a pronounced effect on dopaminergic transmission. As to the expected clinical efficacy, a stimulating and mood-elevating effect is indicated.

Test 5 - Demonstration of cerebro-activating effect in humans

In a single-blind controlled study the pharmaco-EEG, duration of spiral after-effect (SAE), profile of mood state (POMS), MAO activity (cf. 2), and blood pressure were assessed after the administration of 50 g black currant juice concentrate (5.5-fold) in comparison with orange juice as placebo.

As comprehensive measurements are required, the study was carried out on only a single person.

The bipolar EEG is registered by paracentral longitudinal leads. From the pharmaco-EEG the spectra are calculated using the Fast-Fourier-Transformation. The spectrum is divided into band ranges from delta to beta 2 (0.25 - 31.75 Hz). The cerebral activity is determined from the changes in spectral power in the individual frequency bands.

The SAE test is used to assess central nervous excitability. The subject is stimulated by rotation of a so-called Archimedean spiral. After the spiral has stopped, the test person experiences a movement after-effect, the duration of which serves as a measure for the central excitation effect.

The POMS test is a self-rating scale. The values for the four emotional states, namely, depression, fatigue, lack of drive, and bad moods (mood level) are determined from the subject's self-ratings of the individual emotional states.

The test was carried out over a period of three days with administration and measurement at the same time each day:

Day 1 = Baseline - no administration
Day 2 = Administration of test material
Day 3 = Administration of placebo

Result:

MAO type B activity in thrombocytes was inhibited to the extent of 92%, as stated under Test 2. As compared to control and baseline values, an increase of delta and a reduction of alpha 1 and alpha 2 was observed 60 minutes after the application of the test material.

A few minutes before that time, a prolongation of SAE duration, a striking reduction of "fatigue", and a stronger increase in "drive" was observed in comparison with the two other test days (1 and 3).

There was no significant influence of the test material on blood pressure.

These findings underline the results obtained in the animal experiments showing a central nervous activation by black currant juice.

In a further study in humans employing a drink containing concentrated black currant juice, in each case containing definitive quantities of the juice concentrate, and comparing the test materials with a drink containing no black currant juice, but otherwise the same in constitution, the black currant juice concentrate was found to have a definite effect on mental performance and vigilance. Test details follow:

The effects of 3.4 g and 10.2 g HB-1 (black currant juice concentrate, 5.5 fold) on visual perception, concentration, vigilance, psychomotor performance, state of mood and general tolerance was tested in n = 24 healthy young volunteers (8 subjects (Ss) each group). The whole experiment lasted 5 days, with the first day as an exercise day. On the following days (experimental days 1-4) the Ss received either Placebo or 3.4 or 10.2 g HB-1 at 1:30 P.M.

On each day the Ss ran through a test battery five times per day. The test battery consisted of the following psychological tests or scales:

Spiral After Effect (SAE)
Posner - Comparison of digits (POSNER)
Tracking performance test (TRACKING)
Vigilance test - Modified version of the test published by Parasuraman, Raja and Mouloua, Mustapha: Interaction of signal discriminability and task type in vigilance decrement. In: Perception & Psychophysics 41 (1), 17-22 (1987).
Profile of Mood States (POMS)
List of Bodily Symptoms (LBS)
Blood Pressure (BP sys. and BP diast.) and Heart Frequency (HF).

Additlonally the quality of sleep and related sleep factors were assessed by means of a sleep questionnaire (SF-A) at the beginning of each experimental day.

The sessions started at 10:00 A.M. and were finished in the evening at 5:15 P.M. The sessions 1 and 2 in the morning were used as warming up sessions. The effect of HB-1 was evaluated by means of the test data of sessions 3-5.

Effects related to HB-1 were seen with POMS, POSNER and Vigilance test. The results show that HB-1, mainly in the dose of 10.2 g, has an effect on mental performance and vigilance. SAE and tracking performance were not found to be significantly influenced by HB-1 in this particular evaluation.

The tolerance of HB-1 was very good. The results of LBS showed no significant differences between the treatment groups.

Compositions, especially Galenical preparations comprising the active ingredient together with a pharmaceutically- or orally-acceptable diluent or carrier.

The juice of black currant according to the invention can be used as such but is preferably employed in the form of an aqueous concentrate thereof. Any concentration is advantageous, and a concentration of at least twofold, preferably between about fourfold and eightfold, is preferred, with a concentration of about 5.5 fold being especially convenient and preferred. Also preferred is an extract, i.e., a dry extract thereof, such as is readily obtained by lyophilization, spray drying, or forcing the juice under pressure through a cannula, syringe, or venturi. By addition of suitable diluents to the juice, concentrate, or to the dry extract, readily-flowable fluids are obtained.

These basic materials are suitable for incorporation into many galenical presentation forms for use as drugs, foods, and dietetics.

As to pharmaceutical preparations, liquid (syrup) and solid presentation forms (tablets, and especially filmcoated tablets) are representative. Dietetic preparations can representatively comprise liquid presentation forms (e.g., aqueous/alcoholic), instant drinks (e.g., dry granulate), and effervescent tablets.

The following Examples are given to illustrate the compositions of the invention, but are not to be construed as limiting.

Example 1

Dry black currant juice or concentrate, preferably a 5.5-fold concentrate, under vacuum, add a suitable carrier (e.g., maltodextrin), and prepare a readily-flowable dry extract. Mix the extract in a dosage of, e.g., 500 mg per tablet, with a suitable adjuvant, e.g., lactose, microcrystalline cellulose, starch, highly-dispersed silicon dioxide (possibly hydrated), magnesium stearate, or the like, granulate moisture-free and compress into tablets on a suitable tabletting machine. Due to the hydrophilic character of the extract, provide the tablets with a conventional outer protective coating, and fill into blister packs.

Example 2

Multivitamin syrup with black currant juice concentrate

Black currant juice concentrate (5.5-fold)	10.0 g
Vitamin B_1 hydrochloride	2.0 mg
Vitamin B_2 phosphoric acid ester phosphate Sodium Salt	1.5 mg
Vitamin B_6 hydrochloride	1.5 mg
Nicotinamide	20.0 mg
Vitamin C	50.0 mg
D-panthenol	10.0 mg
Sugar	40.0 g
Glycerol	5.0 g
Sorbic Acid	50.0 mg
Flavors q.s.	
Distilled Water q.s. ad	100.0 ml

Dissolve the sugar in water, and add the vitamins to the sugar solution. Dissolve sorbic acid in glycerol, and add to the sugar solution. Finally, add the black currant concentrate and the flavors. Filter the solution and fill into 100-ml bottles.

Example 3

Tonic with black currant juice concentrate

Black currant juice concentrate (5.5-fold)	20.0 g
Sugar	15.0 g
Glucose syrup	15.0 g
Sugar dye	1.0 g
Ethanol	12.0 g
Flavors q.s.	
Distilled Water q.s. ad	100.0 ml

Dissolve sugar, syrup and sugar dye in water. Add ethanol, black currant juice concentrate and the flavors. Filter the solution and fill into 100-ml bottles.

Example 4

Instant Drink (Dry granulate)

I.	Black currant dry extract	1500.0 mg
	Boeson VP*	100.0 mg
	Flavors	100.0 mg
	Sucrose	8600.0 mg
II.	Ethanol about	5.0 ml
	Methyl cellulose	200.0 ml

* Boesen VP (TM; Boehringer Ingelheim) is a neutral glyceride mixture used as an antiagglomerating and lubricating agent.

Pass mixture I through a 1-mm screen and granulate with solution II. Dry in a drying chamber until the odor of ethanol is no longer apparent. Shake 10 g of the granulate with 100 ml of water to prepare the ready-to-use suspension.

Example 5

Multivitamin-Concentrate with Black Currant Juice Concentrate

1.	Acerola*-Cherry-Concentrate	1.20 g
2.	Black Currant Juice Concentrate (5.5-fold)	3.40 g
3.	Gelee Royal**	0.25 g
4.	Mate***-Liquid-Extract (50 Vol. % Ethanol) (15 - 20 mg Caffeine + Theobromine)	1.76 g
5.	Guaranae****-Dry Extract 6.5:1 (30 - 40 mg Caffeine + Theobromine)	1.70 g
6.	Vitamins:	
	- Vitamin B1 Nitrate	2.34 mg
	- Vitamin B2	3.36 mg
	- Vitamin B6 Hydrochloride	3.21 mg
	- Vitamin B12	$7.5x10^{-3}$ mg
	- Biotin	$150.0x10^{-3}$ mg
	- Folic Acid	$240.0x10^{-3}$ mg
	- Nicotinic acid amide	25.20 mg
	- Calcium Pantothenate	12.00 mg
	- Vitamin C	75.00 mg
	- Vitamin E Acetate	19.80 mg
7.	Magnesium Gluconate (equivalent to 100 mg Mg ion)	1.80 g
8.	Dextrose	4.00 g
9.	Grape Concentrate	4.00 g
10.	Malt Extract	1.20 g
11.	Flavors q.s.	
12.	Water q.s. ad	40.00 ml

* = Vitamin C rich West-Indian cherry of special breed

** = Royal jelly (food of bees given to immature bees in order to have them developed into a fertile queen) - used as a tonicity enhancer

*** = Extract from leaves from the Paraguayan mate (tea) tree for supplying caffeine, etc.

**** = Extract from the seeds of a Brazilian plant used in refreshment drinks for supplying caffeine, etc.

Manufacturing Procedure

Acerola Cherry-Concentrate, black currant juice concentrate and Maté-Extract are placed into a stirrer vessel. Gelée Royal, Guaranae dry extract, and Vitamins B and C, dissolved in water, are added and mixed in. Dextrose, grape-concentrate, malt extract and flavors are stirred in.

Vitamin E acetate, dispersed in a small amount of hot water, is added together with the rest of the water and mixed thoroughly.

After a filtration, the concentration is pasteurized im a suitable manner and filled into bottles.

Claims

1. Use of blackcurrant juice or a concentrate or dry extract thereof, which contains essentially no amounts of kernel oil or unsaturated fatty acids, for the manufacture of an orally administrable medicament for promotion of monoamine oxidase inhibition and/or cerebral stimulation.

2. Use as claimed in claim 1 for manufacture of a medicament for increase of cerebral performance and/or improvement of state of mood and/or prevention or treatment of neurodegenerative diseases in a human subject.

3. Use as claimed in claim 1 or claim 2 wherein said medicament is presented for administration of from 100 mg to 50 grams, preferably 1 gram to 20 grams, of blackcurrant juice or concentrate or dry extract thereof per day.

4. Use as claimed in any of the preceding claims wherein said medicament is presented for administration of from 10 mg to 10 grams, preferably 100 mg to 5 grams, of blackcurrant juice or concentrate or dry extract thereof per unit dosage form.

5. Use as claimed in any of the preceding claims wherein an at least two-fold concentrate of blackcurrant juice is employed.

6. Use as claimed in claim 5 wherein a four-fold to eight-fold concentrate of blackcurrant juice is employed.

7. Use as claimed in claim 6 wherein an approximately 5.5-fold concentrate of blackcurrant juice is employed.

8. Use as claimed in any of claims 1 to 4 wherein a dry extract of blackcurrant juice is employed.

9. Use as claimed in any of the preceding claims wherein the blackcurrant juice or concentrate or dry extract thereof is formulated as a pharmaceutical, food or dietetic food composition.

10. Use as claimed in any of the preceding claims wherein the blackcurrant juice or concentrate or dry extract thereof is formulated as a tablet, coated tablet, syrup, tonic or granulate.

11. An orally-administrable composition comprising blackcurrant juice or a concentrate or dry extract thereof together with a pharmaceutically acceptable carrier, said composition being in the form of a tablet, coated tablet, granulate or effervescent tablet and provided that the blackcurrant juice or concentrate or dry extract thereof contains essentially no amounts of kernel oil or unsaturated fatty acids.

12. A composition as claimed in claim 11 in unit dosage form wherein the blackcurrant juice or concentrate or dry extract thereof is present in an amount of from 10 mg to 10 grams, preferably 100 mg to 5 grams, per unit dosage form.

13. A composition as claimed in claim 11 or claim 12 wherein the blackcurrant juice is present in the form of an at least two-fold concentrate.

14. A composition as claimed in claim 13 wherein the blackcurrant juice is present in the form of a four-fold to eight-fold concentrate.

15. A composition as claimed in claim 14 wherein the blackcurrant juice is present in the form of an approximately 5.5-fold concentrate.

16. A composition as claimed in claim 11 or claim 12 wherein the blackcurrant juice is present in the form of a dry extract.

Patentansprüche

1. Verwendung von Johannisbeerensaft oder eines Konzentrats oder Trockenextrakts desselben, welches im wesentlichen keinerlei Menge an Obstkernöl oder ungesättigte Fettsäuren enthält, für die Herstellung eines oral verabreichbaren Medikaments zur Förderung der Monoamin-Oxidase Inhibition und/oder zerebralen Stimulation.

2. Verwendung gemäss Anspruch 1 für die Herstellung eines Medikaments zur Erhöhung der zerebralen Leistungsfähigkeit und/oder Verbesserung des Gemütszustandes und/oder Verhinderung oder Behandlung von neurodegenerativen Krankheiten bei einem Menschen.

3. Verwendung gemäss Anspruch 1 oder 2, dadurch gekennzeichnet, dass das besagte Medikament zur Verabreichung von 100 mg bis 50 g, vorzugsweise von 1 g bis 20 g, pro Tag des Johannisbeerensaft oder Konzentrats oder Trockenextrakts desselben, dargestellt wird.

4. Verwendung gemäss einem der vorstehenden Ansprüche, dadurch gekennzeichnet, dass das besagte Medikament zur Verabreichung von 10 mg bis 10 g, vorzugsweise von 100 mg bis 5 g, pro Einheitsdosis des Johannisbeerensaft oder Konzentrats oder trockenen Extrakts desselben, dargestellt wird.

5. Verwendung gemäss einem der vorstehenden Ansprüche, dadurch gekennzeichnet, dass ein zweifachkonzentrierter Johannisbeerensaft verwendet wird.

6. Verwendung gemäss Anspruch 5, dadurch gekennzeichnet, dass ein vierfach- bis achtfach-konzentrierter Johannisbeerensaft verwendet wird.

7. Verwendung gemäss Anspruch 6, dadurch gekennzeichnet, dass ungefähr ein 5,5-fach konzentrierter Johannisbeerensaft verwendet wird.

8. Verwendung gemäss einem der Ansprüche 1 bis 4, dadurch gekennzeichnet, dass ein Trockenextrakt von Johannisbeerensaft verwendet wird.

9. Verwendung gemäss einem der vorstehenden Ansprüche, dadurch gekennzeichnet, dass der Johannisbeerensaft oder das Konzentrat oder das Trockenkonzentrat desselben als ein pharmazeutisches Mittel, als Nahrungsmittel- oder als Diät-Zusammensetzung formuliert wird.

10. Verwendung gemäss einem der vorstehenden Ansprüche, dadurch gekennzeichnet, dass der Johannisbeerensaft oder das Konzentrat oder das Trockenkonzentrat desselben als Tablette, beschichtete Tablette, Sirup, Tonikum oder als Granulat formuliert wird.

11. Eine oral verabreichbare Zusammensetzung, welche Johannisbeerensaft oder das Konzentrat oder das Trockenextrakt desselben umfasst, zusammen mit einem pharmazeutisch annehmbaren Träger, wobei die besagte Zusammensetzung die Form einer Tablette, beschichtete Tablette, Granulat oder als aufschäumende Tablette aufweist und vorausgesetzt, dass der Johannisbeerensaft oder das Konzentrat oder Trockenextrakts desselben, im wesentlichen keine Menge an Obstkernöl oder ungesättigte Fettsäuren enthält.

12. Eine Zusammensetzung gemäss Anspruch 11 in Einheitsdosis-Form, dadurch gekennzeichnet, dass der Johannisbeerensaft oder das Konzentrat oder das Trockenextrakts desselben, in einer Menge von 10 mg bis 10 g, vorzugsweise 100 mg bis 5 g, pro Einheitsdosis-Form, vorliegt.

13. Eine Zusammensetzung gemäss dem Anspruch 11 oder dem Anspruch 12, dadurch gekennzeichnet, dass der Johannisbeerensaft in Form eines mindestens zweifachen Konzentrats vorliegt.

14. Eine Zusammensetzung gemäss dem Anspruch 13, dadurch gekennzeichnet, dass der Johannisbeerensaft in Form eines vierfachen bis achtfachen Konzentrats vorliegt.

15. Eine Zusammensetzung gemäss dem Anspruch 14, dadurch gekennzeichnet, dass der Johannisbeerensaft in Form eines ungefähr 5,5-fachen Konzentrats vorliegt.

16. Eine Zusammensetzung gemäss dem Anspruch 11 oder dem Anspruch 12, dadurch gekennzeichnet, dass der Johannisbeerensaft in Form eines Trockenextrakts vorliegt.

Revendications

1. Utilisation de jus de cassis ou d'un concentré ou bien d'un extrait sec de celui-ci, qui ne renferme pratiquement aucune quantité d'huile de pépin ni d'acide gras insaturés pour la fabrication d'un médicament susceptible d'être administré par voie orale pour favoriser l'inhibition de la monoamine oxydase et/ou la stimulation cérébrale.

2. Utilisation telle que revendiquée dans la revendication 1 pour la fabrication d'un médicament destiné à augmenter le fonctionnement cérébral et/ou à améliorer l'état de l'humeur et/ou pour la prévention ou le traitement de maladies neurodégénératives chez l'être humain.

3. Utilisation telle que revendiquée dans la revendication 1 ou la revendication 2, dans laquelle ledit médicament est présenté pour être administré à raison de 100 mg à 50 grammes, de préférence de 1 gramme à 20 grammes, de jus de cassis ou bien de concentré ou d'extrait sec de celui-ci, par jour.

4. Utilisation telle que revendiquée dans l'une quelconque des revendications précédentes, dans laquelle ledit médicament est présenté pour l'administration de 10 mg à 10 grammes, de préférence de 100 mg à 5 grammes, de jus de cassis ou bien de concentré ou d'extrait sec de celui-ci, par forme de dosage unitaire.

5. Utilisation telle que revendiquée dans l'une quelconque des revendications précédentes, dans laquelle un concentré d'au moins deux fois de jus de cassis est utilisé.

6. Utilisation telle que revendiquée dans la revendication 5, dans laquelle un concentré de 4 fois à 8 fois de jus de cassis est utilisé.

7. Utilisation telle que revendiquée dans la revendication 6, dans laquelle un concentré d'environ 5,5 fois de jus de cassis est utilisé.

8. Utilisation telle que revendiquée dans l'une quelconque des revendications 1 à 4, dans laquelle un extrait sec de jus de cassis est utilisé.

9. Utilisation telle que revendiquée dans l'une quelconque des revendications précédentes, dans laquelle le jus de cassis ou bien son concentré ou son extrait sec est formulé en composition pharmaceutique, alimentaire ou alimentaire diététique.

10. Utilisation telle que revendiquée dans l'une quelconque des revendications précédentes, dans laquelle le jus de cassis ou bien son concentré ou son extrait sec est formulé en comprimés, en comprimés enrobés, en sirops, en toniques ou en granulés.

11. Une composition susceptible d'être administrée par voie orale, qui comporte un jus de cassis ou bien un de ses concentrés ou de ses extraits secs, conjointement avec un support phamaceutiquement acceptable, ladite composition étant sous la forme d'un comprimé, d'un comprimé enrobé, d'un granulé ou d'un comprimé effervescent et sous la condition que le jus de cassis ou bien son concentré ou son extrait ne renferment pratiquement aucune quantité d'huile de pépins ou d'acides gras insaturés.

12. Une composition telle que revendiquée dans la revendication 11, sous forme de dosage unitaire, dans laquelle le jus de cassis ou bien son concentré ou son extrait sec est présent dans une quantité de 10 mg à 10 grammes, de préférence de 100 mg à 5 grammes, par forme de dosage unitaire.

13. Une composition telle que revendiquée dans la revendication 11 ou dans la revendication 1, dans laquelle le jus de cassis est présent sous la forme d'un concentré d'au moins deux fois.

14. Une composition telle que revendiquée dans la revendication 13, dans laquelle le jus de cassis est présent sous la forme d'un concentré de quatre à huit fois.

15. Une composition telle que revendiquée dans la revendication 14, dans laquelle le jus de cassis est présent sous la forme d'un concentré d'approximativement 5,5 fois.

16. Une composition telle que revendiquée dans la revendication 11 ou la revendication 12, dans laquelle le jus de cassis est présent sous la forme d'un extrait sec.